

CLAIMS

1. Combination in dry form, comprising:
 - microfibrils with a mean diameter of less than 0.8 μm , and
 - 5 - at least one mineral particle.
2. Combination according to the preceding claim, characterized in that the microfibrils have a mean diameter of less than 0.5 μm .
3. Combination according to either of
- 10 Claims 1 and 2, characterized in that the microfibrils have a mean diameter of between 0.5 nm and 10 nm.
4. Combination according to any one of the preceding claims, characterized in that the L/D ratio is greater than or equal to 15, more particularly greater
- 15 than or equal to 20, and preferably greater than or equal to 100.
5. Combination according to any one of the preceding claims, characterized in that the microfibrils have a mean diameter and form factor such
- 20 that their mean length always remains less than 30 μm .
6. Combination according to any one of the preceding claims, characterized in that the cellulose microfibrils are surface-treated such that they bear a polypyrrole coat.
- 25 7. Combination according to any one of Claims 1 to 5, characterized in that the microfibrils

are ceramic microfibrils.

8. Combination according to any one of Claims 1 to 5, characterized in that the microfibrils are asbestos, titanate, alumina or aluminium and/or magnesium dihydroxycarbonate microfibrils.

9. Combination according to any one of Claims 1 to 5, characterized in that the microfibrils are carbon microfibrils which are optionally hollow.

10. Combination according to any one of Claims 1 to 5, characterized in that the microfibrils are organic microfibrils, for instance polyvinyl alcohol, polyamide and cellulose microfibrils.

11. Combination according to any one of the preceding claims, characterized in that the microfibrils are cellulose microfibrils.

12. Combination according to the preceding claim, characterized in that the cellulose microfibrils are of plant, bacterial or animal origin.

13. Combination according to any one of the preceding claims, characterized in that the microfibrils have a degree of crystallinity of less than or equal to 50%.

14. Combination according to the preceding claim, characterized in that the microfibrils consist of 80% primary walls.

15. Combination according to any one of the

preceding claims, characterized in that the microfibrils are surface-charged with carboxylic acids and with acidic polysaccharides, alone or as a mixture.

16. Combination according to any one of the preceding claims, characterized in that the microfibrils are combined with at least one additive chosen from carboxylated cellulose, natural polysaccharides and polyols.

17. Combination according to the preceding claim, characterized in that the cellulose microfibrils are combined with at least one co-additive chosen from:

- oside monomers or oligomers;
- compounds of formula $(R^1R^2N)COA$, in which
15 formula R^1 or R^2 , which may be identical or different, represent hydrogen or a C_1-C_{10} alkyl radical, A represents hydrogen, a C_1-C_{10} alkyl radical or the group R^1R^2N with R^1 and R^2 , which may be identical or different, representing hydrogen or a C_1-C_{10} alkyl
20 radical;

- cationic or amphoteric surfactants;

it being possible for these co-additives to be used alone or as a mixture.

18. Combination according to any one of the preceding claims, characterized in that the mineral particles are chosen from the oxides, hydroxides and

hydroxycarbonates, or combinations thereof, of elements from columns IIA, IIB, IIIB, IVA, IVB and VB of the Periodic Table of the Elements.

19. Combination according to the preceding
5 claim, characterized in that the mineral particles are titanium, aluminium, silicon, zinc, calcium or magnesium oxides, hydroxides or hydroxycarbonates, or combinations thereof, or mixtures thereof.

20. Combination according to any one of
10 Claims 1 to 17, characterized in that the mineral particles are chosen from alkali metal or alkaline-earth metal carbonates, hydrogen carbonates and phosphates, or mixtures thereof.

21. Combination according to any one of
15 Claims 1 to 17, characterized in that the mineral particles are chosen from cerium and lanthanum compounds.

22. Combination according to any one of
20 Claims 1 to 17, characterized in that the mineral particles are silicon carbide.

23. Combination according to any one of
Claims 1 to 17, characterized in that the mineral particles are particles of carbon black.

24. Combination according to any one of
25 Claims 1 to 17, characterized in that the mineral particles comprise carbon in their molecule, and are

coated with at least one compound chosen from the oxides, hydroxides or hydroxycarbonates of elements from columns IIA, IIB, IIIB, IVA, IVB or VB of the Periodic Table of the Elements, alkali metal or
5 alkaline-earth metal carbonates, hydrogen carbonates and phosphates, or alternatively silicon carbide.

25. Combination according to any one of the preceding claims, characterized in that the mineral particles have a specific surface of greater than
10 $30 \text{ m}^2/\text{g}$, preferably between $50 \text{ m}^2/\text{g}$ and $400 \text{ m}^2/\text{g}$.

26. Combination according to any one of the preceding claims, characterized in that the amount of microfibrils is between 0.1 g and 100 g, more particularly between 1 g and 10 g, relative to 100 g of
15 mineral particles.

27. Combination according to any one of the preceding claims, which is in dry form comprising microfibrils with a mean diameter of less than $0.8 \mu\text{m}$, and at least one mineral particle, which can be
20 obtained by preparing a suspension comprising the microfibrils and the mineral particles, which is dried.

28. Process for preparing a combination according to any one of Claims 1 to 26, characterized in that a suspension comprising the microfibrils and
25 the mineral particles is prepared, and is dried.

29. Use of the combination according to any

one of Claims 1 to 27 in polymers.

30. Use of the combination according to the preceding claim, characterized in that the polymer is chosen from the elastomers, polymers and copolymers with a glass transition temperature of between -150°C and $+20^{\circ}\text{C}$, alloys thereof or blends thereof.

31. Article based on polymers comprising the combination according to any one of Claims 1 to 27.

32. Article according to Claim 31, characterized in that it is made from elastomers, polymers or copolymers with a glass transition temperature of between -150°C and $+20^{\circ}\text{C}$, alloys thereof or blends thereof.

33. Article made from elastomers according to either of Claims 31 and 32, which can be used as floor coverings, engine supports, vehicle caterpillar-track components, shoe soles, cable-car rollers, seal for household electrical appliances, sheathing, cabling and transmission belts.

34. Tyre based on elastomers, polymers or copolymers, in which at least one of the parts comprises the combination according to any one of Claims 1 to 27.

35. Tyre according to Claim 34, characterized in that the content of combination is such that the content of microfibrils in the part of

the tyre under consideration is between 0.1 g and 20 g per 100 g of elastomers, polymers or copolymers.

36. Polymer-based battery separator, characterized in that it comprises the combination
5 according to any one of Claims 1 to 27.

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